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BOOK REVIEWS.

The Possibility of a Science of Education. By SAMUEL BOWER SINCLAIR, Vice-Principal of the Normal School, Ottawa, Canada. Chicago: The University of Chicago Press, 1903. Pp. 126.

THOSE who are familiar with Dr. Dewey's educational philosophy will recall the frequent reference that he makes to the educational process as "the reconstruction of experience." It is this idea, and what is involved in it, that Dr. Sinclair uses as a tool in the treatment of the various phases of the discussion of *The Possibility of a Science of Education.* His problem is this: Can there be a science of education? Do we have such a science today; and, if so, is it of any service to the teacher? After a brief statement of his position, the author considers the popular criticisms urged against the professional training of teachers, showing that they are due to a misstatement of the problem, to a lack of knowledge concerning the actual facts, to defects in existing training schools, or to a static view of education and of science.

Chaps. iii and iv are devoted respectively to the dynamic conception of science and the dynamic conception of education. The author rejects the static conception which makes science an end in itself, and adheres to the dynamic or functional conception which "holds that it is impossible to divorce theory from practice." He believes that the object of scientific investigation is to state controlling factors in the realization of ends; that the scientific attitude originates in the "attempt to control processes of observation and interpretation, and to avoid error and get at maximum certainty;" and that "laws are of especial value, not as possessing finality in themselves, but as abstractions made for purposes of control." The several theories that have been current during different epochs are reviewed in the light of the philosophical systems which they respectively reflect. The superiority of the dynamic conception is shown to be due to the fact that the individual is ever changing, that "in the forward movement of experience the shifting of the focus of the present reveals constant change, constant growth." The dynamic conception of science is applied to education so as to show that "educational science arose from an effort to gain control of the educational process, to secure instruments of insight which would enable the educator to make the wisest selection of aims and means." His position regarding education as a science may be seen in the following statement: "It is not claimed that there have been, or can be, discovered educational facts or laws which when memorized will enable the teacher to posit with certainty the best method of procedure in each particular case. The contention is that by following a certain course of preparatory investigation the teacher will gain such insight as will enable him to understand the particular situation in its complex bearings — its needs and the proper mode of response — in a way that would have been entirely impossible without such preliminary training." The author thus bases his argument for a science of education upon the fact that there is a purpose in education, that there are instruments by means of which this purpose can be accomplished, and that the control of these instruments involves careful and continued investigation. "Failure to realize this fact has resulted, on the one hand, in an empirical procedure, depreciating all experimental work, and, on the other, in experimentation of an unscientific character."

The most valuable part of the book is the discussion of educational aims and means and the psychological factor. Each of these subjects is discussed with reference to its function in the "reconstructive process." Emphasis is placed upon the dynamic conception of education, because it is that which transforms what might otherwise be empirical, if not mechanical, activities into an intelligent and orderly process which is worthy to be designated as scientific.

The unity of individual experience is reviewed as it is manifest in the stages of individual development. The later stages are shown to differ from the earlier not so much "in the quality as in the complexity of the experience which reveals itself." For instance, "in the period of later *infancy* the characteristic unity may be said to be the *story,* the present, direct response. In the period of *childhood* it is found in serial order, a relation of means and ends, a history or a scheme, which toward the latter part of the period throws emphasis on *skill,* as the attitude becomes increasingly mediated and indirect. In the *youth* period the unity may be said to be *law, abstraction, generalization;* there is a tendency to seek truth for its own sake, to probe into the hidden meaning of things, to develop technique in a scientific way, and the activity becomes more and more reflective." The unity of experience running through these stages is more apparent when it is considered that perception, memory, imagination, and thought are not regarded as isolated faculties, as in the old "faculty psychology," but as stages of development that are present implicitly or explicitly in every attentive act. "Voluntary attention differs from involuntary in the complexity of the operation." Feeling, knowing, willing are but the three aspects of one experience. "A proper training of one factor means a training for all the others, a correct method of acquisition of knowledge will at the same time afford volitional and emotional training."

Since all teachers use some method, whether they are conscious of it or not, the author emphasizes the importance of the use of those methods which are adapted to the problem in hand. Rejecting imitative methods, except in cases where they are used to "eliminate a number of elements or factors of purely individual experimentation," he argues that method can become an instrument of control only when the teacher understands the conditions which affect the case in question. This involves, on the one hand, a knowledge of the child and his surroundings, and, on the other a knowledge of the subject-matter, the experience which it is the function of the teacher to translate into a form that can be appropriated by the child. The dynamic conception of education makes a demand upon the teacher for more than an ordinary knowledge of the subject. It is necessary for the teacher to know, not merely the subject, but its genesis, and the logical and psychological relations that are involved in a suitable presentation of it to the learner.

To understand the conditions most conducive to educational activity, the teacher needs knowledge that belongs to many different sciences. That which belongs to the science of education is that which is essential to giving the teacher such an insight into the fundamental problems that she is sure to meet as will enable her to deal intelligently with particular cases when they arise. This fact is illustrated by showing the difference in the attitudes and the methods employed by two school principals, one of whom makes use of the static conception in classifying a pupil, and the other of the dynamic conception. Several illustrations are also given of ways in which the training that is given in the best teachers' training schools is of service to the teacher in school management and in teaching.

In the closing chapter, which treats of the technique of educational science, the present status of education is reviewed, the influences detrimental to its growth pointed out, and improvements suggested. A compilation of the best of what is being done and has been done is urged, in order to give the student of educational science a fair start as compared with students in other departments of scientific research. The chapter closes with illustrations of the development of educational technique, and a treatment of the subject in professional training schools.

It is unfortunate that a book which contains so much of what is vital in the solution of educational problems should be written in a style that obscures its meaning. In addition to the difficulty caused by the frequent use of technical terms, there is that which is due to frequent digressions from the main line of thought. Had more care been devoted to the arrangement of the material presented, a continuity of thought could easily have been secured which, doubtless, would have relieved the author from the necessity of using argument in places where those most likely to read the book would prefer exposition.

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Geographic Influences in American History. By ALBERT PERRY BRIGHAM, A.M., F.G.S.A., Professor of Geology in Colgate University. Boston: Ginn & Co., 1903. Pp. x, 366.

THE worth of the geographic factor in accounting for the industries, political history, leisure pursuits, and the character of local and national communities has been under discussion for a great many years. We are told that "character is a function of latitude," that "a man is what he eats," that, in short, climate, topographical conditions, and physical and social environment determine completely the mode and nature of human activities. And while this is still a subject of discussion which has not been settled in favor of the affirmative, it is commonly granted that geographical conditions do play some part in the development of communities and nations. As indicating some of these influences, and their effect, upon American local and national life, the recent work of Professor Brigham is of more than usual interest.

His method of presentation is simple. The plan evidently is first to present geographic conditions and then to show how history is made and influenced thereby. For purposes of treatment the book is divided into twelve chapters, and each chapter, except the last, which is not directly relevant to the general theme, deals with a distinct geographical unit; or a group of units, as the ones on the Civil War and on Geography and American destiny. The headings of the chap-